

Work Order ID 48487-1

October 7, 2009 12:06:19 PM



Page 1

Item ID: D2003-037

Accept



Setup Start



Revision ID: U/R

Stop



Item Name: Tube Assembly

Start Date: 10/07/09 Start Qty: 6.00



Cust Item ID:

Required Date: 10/09/09 Req'd Qty: 6.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

D2003 Rev U/R

100



Small Fab

Memo

Cut as per template D2003-037 (23.38" long)

1-Cut: 23.38" long as per Dwg D2003

Material: M2650-6 Heat sleeve

2- Form tube as per template D2003-037

3- Assemble as per Dwg D2003

see attached

110



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

0.00

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Item ID: D2003-037

Accept



Setup

Start



Revision ID: U/R

Stop



Item Name: Tube Assembly

Start Date: 10/07/09 Start Qty: 6.00



Cust Item ID:

Required Date: 10/09/09 Req'd Qty: 6.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
Description

120

Identify as per dwg & Stock Location: 192

Packaging

Packaging

130



QC

Quality Control

QC21- Final Inspection - Work Order Release

Set Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

0.00

0.00

0.00

0.00

0.00

0.00

9/10/11 6x SF

09/10/13 JF

MF
09-10-08

Picklist Print

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Page 1
2

Work Order ID: 48487-1



Parent Item: D2003-037RevU/R



Parent Item Name: Tube Assembly

Start Date: 10/07/09

Required Date: 10/09/09

Comments: Rev:B Re-format

Start Qty: 6.00

Required Qty: 6.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
✓ M304TR0.500W.035 		Purchased 		No		100	f	320.8235	12.3051 			

304 RD Tube .500 x .035W

Warehouse

Location

Main Warehouse

MAT	320.8234674	
108250	2.23	
111704	31.6682737	
112187	43.9830937	
112800	242.9421	

100 f 58.7016 13.0737

✓ M2650-6

Purchased	No											

Firesleeve-crkl .375IDia

Warehouse

Location

Main Warehouse

ST	58.70156221	
112195	58.7015622	

100 Each 19.0000 12.0000

✓ AN818-8J

Purchased	No											

Nut

Warehouse

Location

Main Warehouse

ST	19	
106074	18	
107959	1	

Picklist Print

Page 2

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Work Order ID: 48487-1



Parent Item: D2003-037RevU/R



Parent Item Name: Tube Assembly

Start Date: 10/07/09

Required Date: 10/09/09

Comments: Rev:B Re-format

Start Qty: 6.00

Required Qty: 6.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
✓ MS20819-8J 		Purchased		No		100	Each	17.0000	12.0000			

Sleeve

Warehouse

Location

Main Warehouse

ST

Loc Qty

Loc Code

17

112082

17

✓ D3158-045RevA

Manufactured No

100 Each 22.5000 6.0000



Heat Shrink

Warehouse

Location

Main Warehouse

ST

Loc Qty

Loc Code

22.5

21848

4.5

38592

18

Work Order Summary

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Page 1 of 2

Criteria : Work Order ID: 48487 Item ID: D2003-017RevU/R Product Family SMALL FAB
 Work Order Start Dates 7/15/09 to 7/15/09 11:59:59 PM Work Order Required Dates 8/03/09 to 8/03/09
 11:59:59 PM

All References

Work Order Status Released

Work Order ID	48487	Required Qty	6.0000	Status Code	Released
Item ID	D2003-017RevU/R	Accepted Qty	0.0000	Scrap Qty	0.0000
Item Name	Tube Assembly				

Current Acct Value \$161.717

Sales Order ID

Start Date 7/15/09 Required Date 8/03/09

Completed Date

Standard	** Actual **	** Acct. Value **	** Variance **	** Variance % **
----------	--------------	-------------------	----------------	------------------

Direct Costs	Total	Each	Each	Each	Each
Material	\$82.140	\$0.000	\$18.125	\$18.125	100.00%
Labor	\$211.818	\$0.000	\$0.000	\$0.000	0.00%
Outplant	\$0.000	\$0.000	\$0.000	\$0.000	0.00%
Variable Burden	\$0.000	\$0.000	\$0.000	\$0.000	0.00%
Fixed Burden	\$888.836	\$0.000	\$0.000	\$0.000	0.00%
Material Burden	\$0.000	\$0.000	\$0.000	\$0.000	0.00%
** Total **	\$1,182.794	\$0.000	\$18.125	\$18.125	

Item ID/ Item Name	Required Qty	Issue Code	Issue Date	Issued Qty	Cost Amount
ZWIP	0.0000				
Opening WIP BALANCE MATERIAL COST			6/25/09	82.1400	\$82.140
				Total Matl Amts:	\$82.140

Work Center

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
-------------	-------------	------------	-------------	--------------------	-------------	--------------------	------------	--------------	--------------	-----------------	-----------------	---------------

ZWIP												
		6/25/09										
N/A			0.00	0.00	53.92	53.92	1.00	\$0.000	\$53.920	\$274.992	\$0.000	\$328.91
		6/26/09										
N/A			0.00	0.00	0.30	0.30	1.00	\$0.000	\$0.298	\$0.000	\$0.000	\$0.29
	Total:		0.00	0.00	54.22	54.22	2.00	\$0.000	\$54.218	\$274.992	\$0.000	\$329.21

Work Center Small Fab

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
-------------	-------------	------------	-------------	--------------------	-------------	--------------------	------------	--------------	--------------	-----------------	-----------------	---------------

GREG01												
		7/01/09										
100			0.00	0.00	3.92	3.92	1.00	\$0.000	\$65.996	\$257.053	\$0.000	\$323.04
100			0.00	0.00	3.08	3.08	1.00	\$0.000	\$51.954	\$202.357	\$0.000	\$254.31

Date: Thursday, 11/06/2009 11:54:47 AM
 User: Julie Dawson

Process Sheet

Customer	CU-DAR001 Dart Helicopters Services			Drawing Name	TUBE ASSEMBLY		
Job Number	48487			Part Number	D2003037		
Estimate Number	11919			Drawing Number	D2003 UNDER REVIEW		
P.O. Number				Project Number	N/A		
This Issue	11/06/2009	S.O. No.		Drawing Revision	B		
Prsh Rev.	NC			Material			
First Issue	/ /	Type	SMALL /MED FAB	Due Date	19/06/2009		
Previous Run	38551			Qty:	6		
Written By				Um:	Each		
Checked & Approved By	JWD 09.06.11						
Comment	Est B 00.01.12 Re-format EC						

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
1.0 ✓	M304TR0500W035	304 RD Tube .500 x .035W
		Comment: Qty.: 2.0457 f(s)/Unit Total : 12.2743 f(s) 304 RD Tube .500 x .035W Cut as per template D2003-037 (23.38" long) 24.81 09.06.11 Material: 1/2"AE x 0.035" wall AISI 304 SS tubing Cut: 23.38" long as per Dwg D2003 CUT 24.81 Q 09.06.11 Batch: M111097 M-h 09/06/24
2.0 ✓	M26506	Firesleeve-crkl .375IDia M112195 09/07/23
3.0 ✓	MS208198J	Sleeve M109370 M-h 09/06/24
4.0 ✓	AN8188J	Nut M107959 M-h 09/06/24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
09.06.11	1	Cut length = 24.81"				<i>GP</i> 09.06.11 081 042	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 11/06/2009 11:54:47 AM

User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: TUBE ASSEMBLY

Job Number: 48487

Part Number: D2003037

Job Number:



Seq. #: Machine Or Operation:

Description :

5.0 D3158045 Heat Shrink



Comment: Qty.: 1.0000 Each(s)/Unit Total : 6.0000 Each(s)

Heat Shrink 1" x 4.5"

Pick:

Qty	Part Number	Description	Batch
1	D3158-045	Heat shrink	

X
B21864B M-L 09/06/24

6.0 SMALL FAB 1 SMALL & MEDIUM FAB RESOURCE 1



(6x)

Comment: SMALL & MEDIUM FAB RESOURCE 1

Form tube as per template D2003-037

Assemble as per Dwg D2003

M-L 09/06/23

7.0 QC5 INSPECT WORK TO CURRENT STEP



(46)

Comment: INSPECT WORK TO CURRENT STEP

S09/06/07

8.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

9.0 QC21 FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART



DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. B
DATE		D2003	SHEET 1 OF 2
99.06.08		TITLE	SCALE
		206 CABIN HEATER TUBE ASSEMBLIES NTS	
A	90.04.09	NEW ISSUE	
B	99.06.08	UPDATE PER TEMPLATES; ADD P/N'S; 0.025 TUBING NOW 0.035 (TSR1049)	

RELEASED
49.06.08 RE

UNDER REVIEW

CC-08-21 CB

Some flat
lengths wrong

P/N	TEMPLATE	HEATSLEEVE LENGTH ¹	CUT LENGTH OF TUBE ²	MS20819-8J SLEEVE	AN818-8J NUT	MS20819-8D SLEEVE	AN818-8D NUT	MS20819-6D SLEEVE	AN818-6D NUT	DESC.	MATERIAL ^{4/8/7}	VENDOR OR SPEC	
D2003-001	T2003-001	5.2	6.00							2 2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-003	T2003-003	7.3	8.12							2 2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-005	T2003-005	9.8	10.62							2 2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-007	T2003-007	20.0	19.63							2 2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-009	T2003-009	12.38	12.44							2 2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-011	T2003-011	33.31	32.38							2 2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-013	T2003-013	12.7	13.54							2 2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-015	T2003-015	17.2	18.00							2 2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-017	T2003-017	17.0	16.25							2 2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-019	T2003-019	9.8	10.62							2 2	TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-700/6
D2003-021	T2003-021	N/A	2.25							2 2	TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-700/6
D2003-023	T2003-023	4.5	5.33							2 2	TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-700/6
D2003-025	T2003-025	9.8	10.60							2 2	TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-700/6
D2003-027	T2003-027	7.25	7.38							2 2	TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-700/6
D2003-029	T2003-029	17.2	18.00							2 2	TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-700/6
D2003-031	T2003-031	14.6	15.38	2 2							TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-033	T2003-033	29.75	29.62	2 2							TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-035	T2003-035	24.7	27.00	2 2	2 2	~ 24.7					TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-037	T2003-037	24.81	24.38	2 2	2 2						TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-039	T2003-039	34.0	34.00	2 2							TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-041	T2003-041	6.0	5.88	2 2							TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-043	T2003-043	11.7	10.75	2 2							TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-045	T2003-045	3.50	2.44	2 2							TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-047	T2003-047	5.56	5.56	2 2							TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-049	T2003-049	33.2	34.00	2 2							TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-077	T2003-077	N/A	6.25					1 1			JET	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-101	T2003-101	13.25	13.13					2 2			TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-600/6
D2003-103	T2003-103	12.38	12.00					2 2			TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-600/6
D2003-105	T2003-105	10.75	10.60					2 2			TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-600/6
D2003-107	T2003-107	12.75	12.25					2 2			TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-600/6
D2003-109	T2003-109	8.25	8.125					2 2			TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-600/6
D2003-111	T2003-111	4.75	4.625					2 2			TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-600/6
D2003-116	T2003-116	4.0									HEATSLEEVE	M2650-20 CRINKLE-SOFT	STRATOFLEX
D2003-120	T2003-120	4.0									HEATSLEEVE	M2650-16 CRINKLE-SOFT	STRATOFLEX
D2003-14	T2003-14	4.0									HEATSLEEVE	M2650-14 CRINKLE-SOFT	STRATOFLEX
D2003-16	T2003-16	4.0									HEATSLEEVE	M2650-16 CRINKLE-SOFT	STRATOFLEX
D2003-205	T2003-205	9.75	9.60					2 2			TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-207	T2003-207	3.75	3.75					2 2			TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6

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SUBJECT TO AMENDMENT

DART

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. B
DATE	99.06.08	TITLE	SHEET 2 OF 2 SCALE 206 CABIN HEATER TUBE ASSEMBLIES NTS

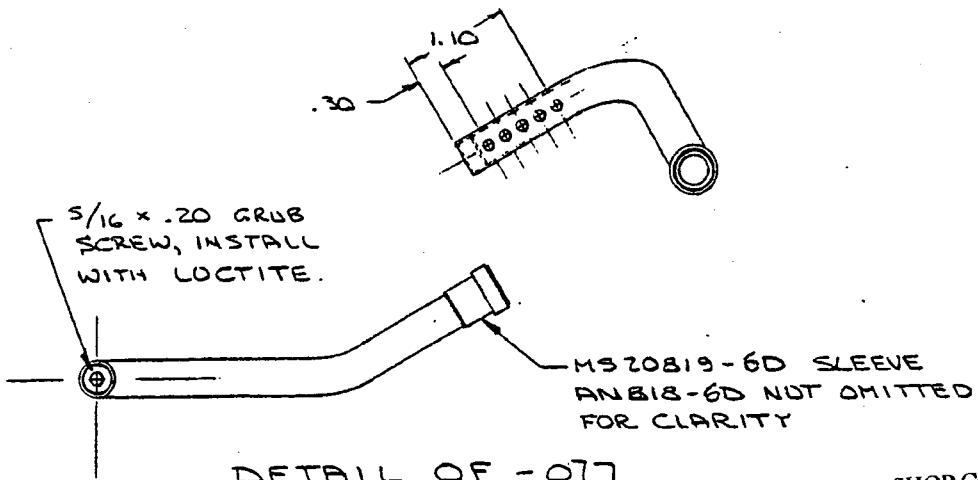
RELEASED
99.06.08 KE
UNDER REVIEW

06.08.21 CB

Some flat lengths
~~and~~ wrong

Notes:

- (1) USE STRATOFLEX M2650-6 CRINKLE-SOFT HEATSLEEVE.
- (2) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATES.
- (3) TUBES TO BE FLARED 30° TO MATE WITH FITTINGS MADE TO MS33514.
- (4) ENSURE SEAMLESS TUBING IS USED.
- (5) INSTALL HEATSLEEVE OVER ALL TUBES WITH A DESIGNATED LENGTH OF HEATSLEEVE PER THE PARTS LIST.
- (6) 5052 (WW-T-700/4) TUBING MAY BE SUBSTITUTED WHEN 6061 TUBING IS NOT AVAILABLE.
- (7) 0.049 WALL THICKNESS CRES TUBING MAY BE SUBSTITUTED WHEN 0.035 IS NOT AVAILABLE.
- (8) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.



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WITHOUT NOTICE
WORK ORDER
NO. 4848

Date: Monday, 29/06/2009 10:37:13 AM
 User: Melanie Fauteux

JOB HISTORY : DETAIL

Job Number	: 48487	Customer	: Dart Helicopters Services LLC.				
Estimate Number	: 11919	DWG Name	: TUBE ASSEMBLY				
Purchase Order #	:	Part Number	: D2003037				
Complete Date	: / / : : AM	DWG Number	: D2003 UNDER REVIEW				Rev. : B
DUEDATE	ORDERED	DELIVERED					
19/06/2009	6	0					
1.0 M304TR0500W035-304 RD Tube .500 x .035W	INVENTORY I						
DATE	EMPLOYEE	TYPE	Qty		COST		
24/06/2009	GREG01: Gregory, Marc	M304TR0500W035 ✓	12.274		\$16.54	Lot # 111097 Qty. 12	
Subtotal:	QTD:	0 CTD:	12		\$16.54		
3.0 MS208198J-Sleeve	INVENTORY ITEM						
DATE	EMPLOYEE	TYPE	Qty		COST		
24/06/2009	GREG01: Gregory, Marc	MS208198J	12.000		\$26.20	Lot # 109370 Qty. 12	
Subtotal:	QTD:	0 CTD:	12		\$26.20		
4.0 AN8188J-Nut	INVENTORY ITEM						
DATE	EMPLOYEE	TYPE	Qty		COST		
24/06/2009	GREG01: Gregory, Marc	AN8188J	12.000		\$39.40	Lot # 107959 Qty. 12	
Subtotal:	QTD:	0 CTD:	12		\$39.40		
6.0 SMALL FAB 1	<i>Internal Operation</i>						
DATE	EMPLOYEE	TYPE	Qty	Time(hrs)	COST	MTime(hrs)	Mach.Cost
24/06/2009	GREG01: Gregory, Marc	Run	0.000	0.78	\$13.14	0.78	51.11
24/06/2009	GREG01: Gregory, Marc	Run	0.000	2.42	\$40.78	3.42	224.18
Subtotal:	QTD:	0 CTD:	0	3.20	\$329.21		
		Machine Time:		TIME	COST		
		Labor:		4.20	\$275.29		
		Sub-contract (external Op.):		3.20	\$53.92		
		INVENTORY ITEM:			\$0.00		
		SUB-COMPONENT (SUB-JOB):			\$82.14		
Total:					\$0.00		
					\$411.35		
		COST PER UNIT:			\$411.35		

Date: Thursday, 11/06/2009 11:54:47 AM
User: Julie Dawson

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services			Drawing Name	: TUBE ASSEMBLY		
Job Number	: 48487			Part Number	: D2003037		
Estimate Number	: 11919			Drawing Number	: D2003 UNDER REVIEW		
P.O. Number	:			Project Number	: N/A		
This Issue	: 11/06/2009 S.O. No. :			Drawing Revision	: B		
Prsht Rev.	: NC			Material	:		
First Issue	: / / Type : SMALL /MED FAB			Due Date	: 19/06/2009 Qty: 6 Um: Each		
Previous Run	: 38551						
Written By	:						
Checked & Approved By	: <u>JUL 09 06-11</u>						
Comment	: Est B 00.01.12 Re-format EC						

Additional Product

REFERENCE ONLY

Job Number:	
Seq. #:	Machine Or Operation:
1.0	M304TR0500W035
	
Comment: Qty.: 2.0457 f(s)/Unit Total : 12.2743 f(s) 304 RD Tube .500 x .035W Cut as per template D2003-037 (23.38" long) <i>CUT 24.81</i> Material: 1/2"AE x 0.035" wall AISI 304 SS tubing Cut: 23.38" long as per Dwg D2003 <i>CUT 24.81</i> Material: M2650-6 Heat sleeve Batch: _____	
2.0	M26506
	
Comment: Qty.: 2.0700 f(s)/Unit Total : 12.4200 f(s) Firesleeve-crkl .375IDia	
3.0	MS208198J
	
Comment: Qty.: 2.0000 Each(s)/Unit Total : 12.0000 Each(s) Pick Qty Part Number Desc Batch:	
4.0	AN8188J
	
Comment: Qty.: 2.0000 Each(s)/Unit Total : 12.0000 Each(s) Pick Qty Part Number Desc Batch:	